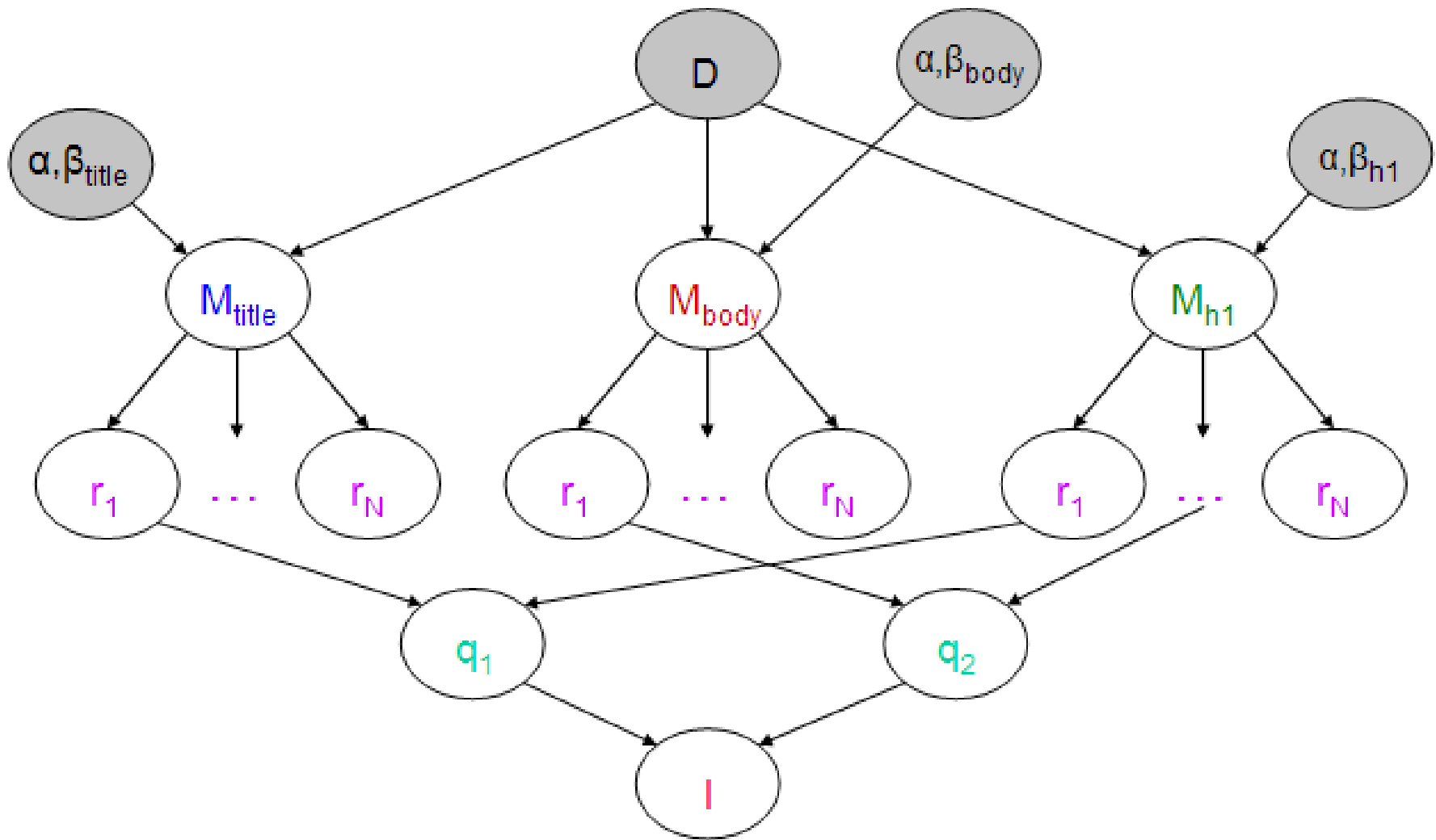
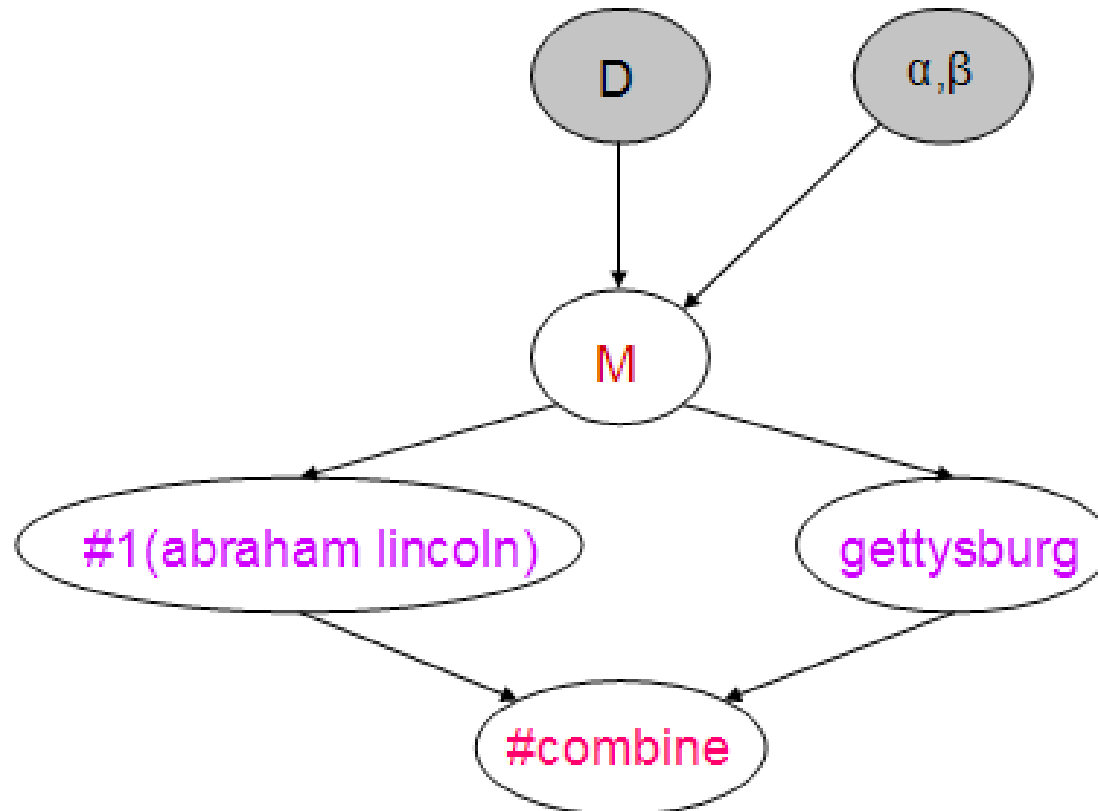


Understanding Retrieval



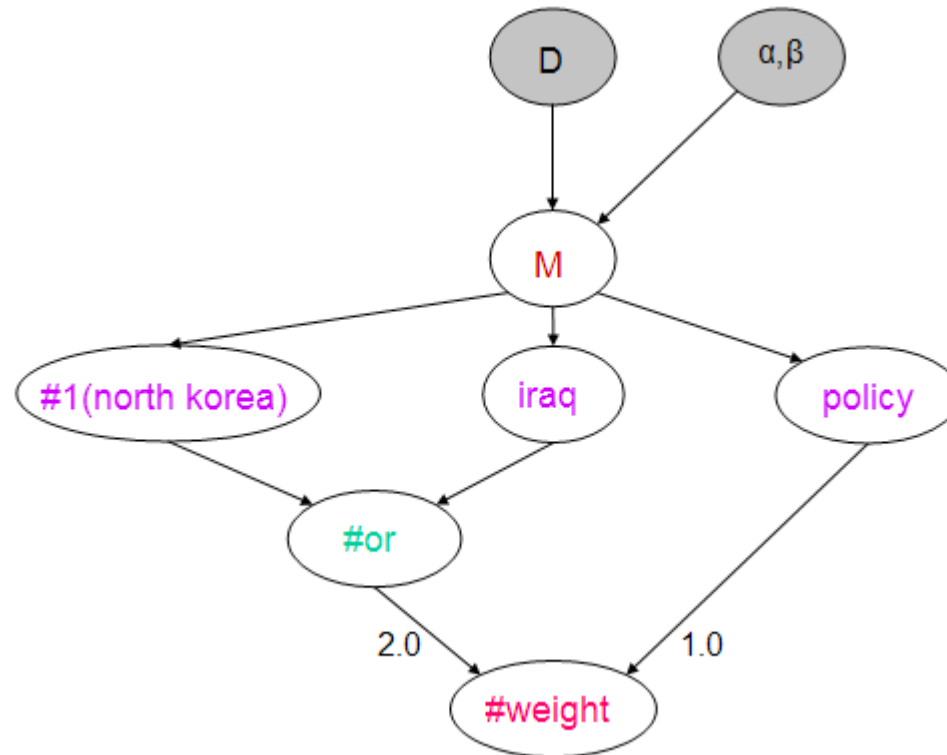
Inference Networks

combine(#1(abraham lincoln) gettysburg)



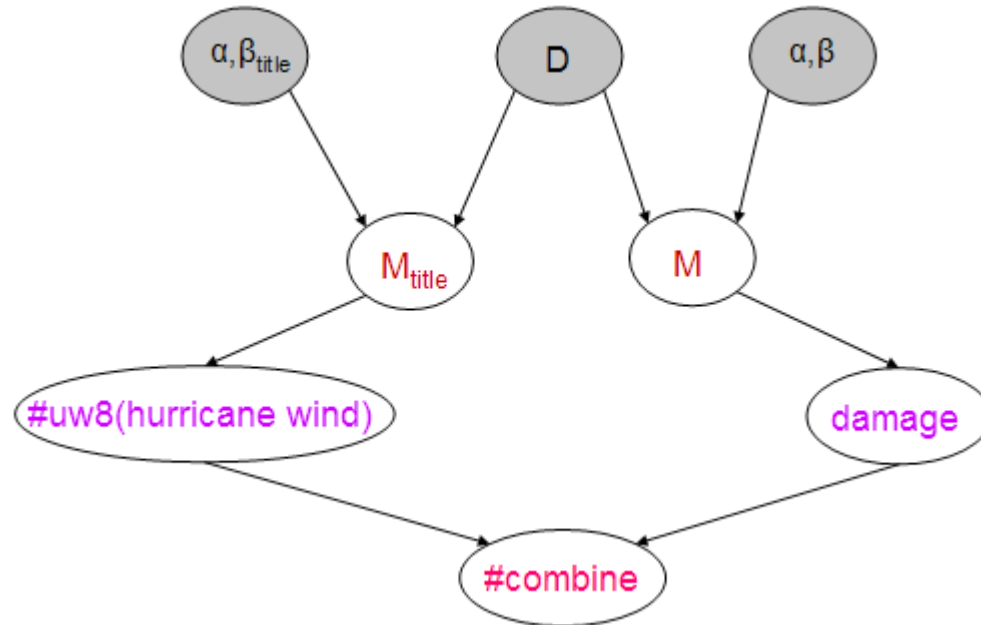
Inference Networks (contd)

#weight(2.0 #or(#1(north korea) iraq) 1.0 policy)



Inference Networks.

`#combine(#uw8(hurricane wind).(title) damage)`



Document: A B C A

feature order = [A B C AA AB CA
BC]

$$D = \left\{ \begin{array}{l} [1 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0], \\ [0 \ 1 \ 0 \ 0 \ 0 \ 0 \ 1], \\ [0 \ 0 \ 1 \ 0 \ 0 \ 1 \ 0], \\ [1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0] \end{array} \right\}$$

$$P(r | D) = \frac{tf_{r,D} + \alpha_r}{|D| + \alpha_r + \beta_r}$$

$$\alpha_r = \mu P(r | C)$$

$$\beta_r = \mu (1 - P(r | C))$$

$$P(r | D) = \frac{tf_{r,D} + \mu P(r | C)}{|D| + \mu}$$

One way to set the parameters is to say that the expected value of $P(M)$ is $P(r|C)$.

Combining Beliefs

$$b_{\#combine} = \prod_{i=1}^n b_i \left(\frac{1}{n} \right)$$

$$b_{\#weight} = \prod_{i=1}^n b_i \left(\frac{w_i}{W} \right)$$